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CONVENIENT
KITCHENS



HIGH POINTS OF KITCHEN PLANNING

First, last, and all the time, in planning and equipping a kitchen, think about the work to be done in it.

If building or remodeling a kitchen, make it oblong and with no more floor space than actually needed. A kitchen is a workroom. Spaciousness is paid for in miles of extra steps.

Study the relation of the kitchen to the rest of the house. Make a direct connection from kitchen to dining room in the common wall between them. See to it also that there is easy access to front and back doors, to the telephone, to the stairs, to the cellar, and to the second floor.

Arrange for adequate ventilation in all weathers and for good lighting at all work centers at night as well as during the day.

Choose finishes for floor, walls, and woodwork that are durable, suitable in color, and can be kept clean easily.

Select furnishings that fit the needs, suit the wall and floor space, and will pay for themselves in usefulness. Weigh the pros and cons of built-in or movable furnishings for your own kitchen and compare prices carefully.

Decide on the most comfortable height of working surfaces.

Group all equipment, large and small, into compact work centers for preparation of raw food, cooking, serving, clearing away and dishwashing, and any other activities done regularly and often in the kitchen.

Arrange these groups from left to right following the order in which the various jobs are done.

The kitchen is above all else a place to prepare and serve food. Limit it to this use if possible, and arrange for laundering and such work to be done in another place.

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CONVENIENT KITCHENS

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A CONVENIENT kitchen is one in which the necessary work can be done with the least possible effort. To plan such a kitchen requires at least two things. First, there must be a clear idea of all the routine jobs to be done in the kitchen in the order that they are most likely to come. Preparing raw food, cooking, serving, clearing away and dishwashing are the jobs that follow each other most often in the majority of kitchens. Second, after the plan of work is clearly in mind, comes the choosing and placing of the needed equipment. The relation of the kitchen to the rest of the house, especially the dining portion, also plays an important part in convenience.

Ideally the kitchen should be built around the necessary equipment. Floor space, windows, doors, and other stationary features can then be planned to the best advantage, and centers for various kinds of work can be so placed that the space needed for one will not be cluttered by the equipment of another. In a new house this ideal arrangement is possible. Even in one where the structure can not be changed, regrouping of equipment will often double the convenience.

This bulletin gives principles of arrangement that make for convenience in any kitchen. They must, of course, be adapted to the size, arrangement, and location of the house as a whole, and to the needs of the individual family. Every kitchen has some problems peculiar to itself. The principles in this bulletin, however, are presented in such form that they can be worked into the plan for a

¹ Acknowledgment is made of the assistance afforded by the Division of Agricultural Engineering, Bureau of Public Roads, in the preparation of floor plan illustrations.

new house or used in remodeling an old one to meet present-day labor-saving standards. Suggestions are also given for kitchen improvements that the homemaker can carry out herself, once a logical plan for kitchen work is adopted.

Saving of floor space is one of the chief points illustrated by the plans. In some of them it has been accomplished by placing the range very close to or in contact with walls or with cabinets and other built-in features. In adopting such arrangements, care must be taken to safeguard against fire.² In some of the plans also a hot-water boiler is shown next to the range, but it is not recommended that the boiler be located in the kitchen if it can be placed elsewhere. In the plans that show no boiler it is assumed that such arrangement has been possible.

HOW TO READ THE PLANS

Walls, doorways, windows, and other structural features in the plans are indicated by the generally accepted symbols. Walls are shown as solid black, doorways as breaks in the solid black, and a door by a straight line with an arc to indicate the direction in which it swings. Windows are shown by breaks in the walls with the boundary lines carried through and with two lines drawn between. Brickwork of chimneys is represented by parallel slanting lines. Stairs also are shown by parallel lines, each one representing a riser. Dotted lines indicate something underneath some other feature shown in solid lines, an archway or other overhead feature, or a folding device such as a drop-leaf or an ironing board. The furnishings are shown in outline and in most cases are labeled. The sink is so easily identified by its shape and the lines indicating attached drainboards that it is left unlabeled. The small circle adjacent to or near the range indicates a hot-water boiler. All plans are drawn to the same scale, one-eighth inch to the foot.

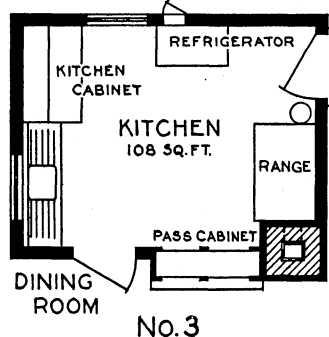
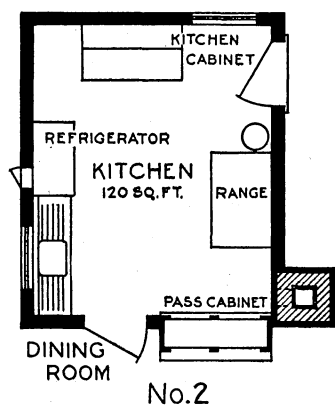
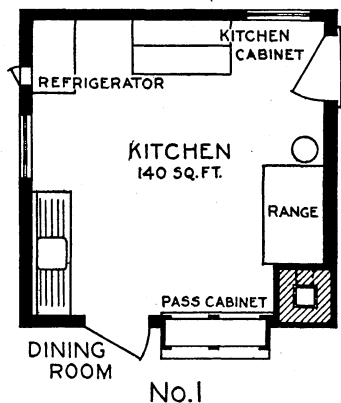


FIG. 1.—A comparison of square and oblong kitchens showing the greater convenience and saving of floor space in the oblong

² The National Board of Fire Underwriters. 1920. Dwelling houses. A code of suggestions for construction and fire protection.

The first plan in Figure 1, for example, shows to the left of the dining-room door a sink with drainboards on each side, a window just beyond, and in the corner a refrigerator equipped for icing through a door in the outside wall. A kitchen cabinet with a working surface broader than the upper part, and a window occupy what remains of the second wall. On the third wall is another door, then the boiler and range next to the chimney in the corner. The pass-cabinet fills the space from the chimney to the dining-room door.

SIZE AND SHAPE OF THE KITCHEN

Small kitchens are in general more convenient than large ones. In shape the oblong is more economical of floor space than the square and fewer steps are required in crossing the room from one

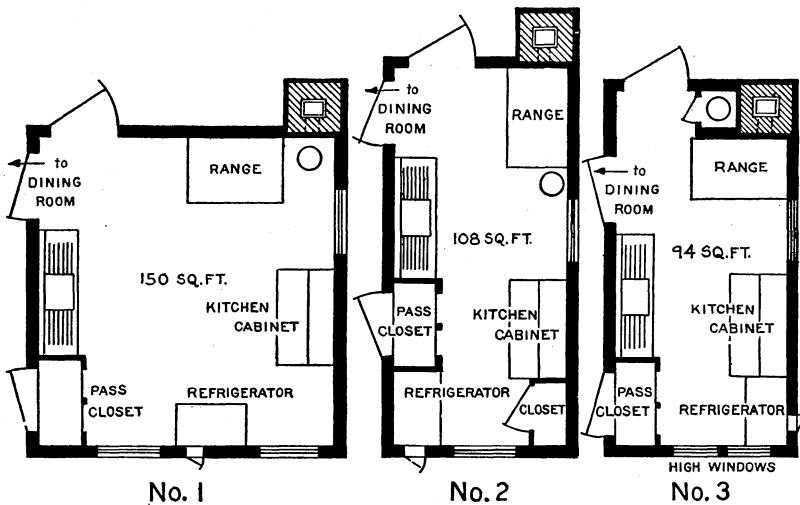


FIG. 2.—Another example of space saving in the oblong kitchen as compared with the square. The test for waste space is seeing whether the equipment can be packed into a smaller well-lighted area, leaving enough room to work comfortably

work center to another. For the average family in a house of six or seven rooms, a kitchen with from 90 to 108 square feet is satisfactory. The exact size should be determined by the number of activities to be accommodated, by the size of the large pieces of equipment, by the number of doors, and to some extent by the kind of fuel used in cooking.

The chief work in most kitchens is food preparation. In addition the kitchen must sometimes be used as the family dining room, as a laundry, as a place for separating milk and making butter, and as a playroom for small children. More floor space is then required than if it is limited chiefly to work connected with food. Even so, efficient arrangement is possible in a large, general-purpose kitchen by planning work centers for the various activities. At the other extreme is the kitchenette where every foot of wall and floor space must be utilized and sliding and drop shelves and other ingenious devices studied out to provide the needed working surfaces.

Stove, sink, table or cabinet, or both, cupboard for dishes and utensils, and sometimes a refrigerator are the large pieces of equipment for which allowance must generally be made. By careful planning such economical use can be made of walls and floor space that all these can be conveniently placed in a comparatively small area.

Two doors, one to the dining room and the other to the back porch or entry, are the minimum in the kitchens of most houses. Two or three more doors leading to cellar, pantry, and hall are not uncommon. In many cases the kitchen is made larger than would otherwise

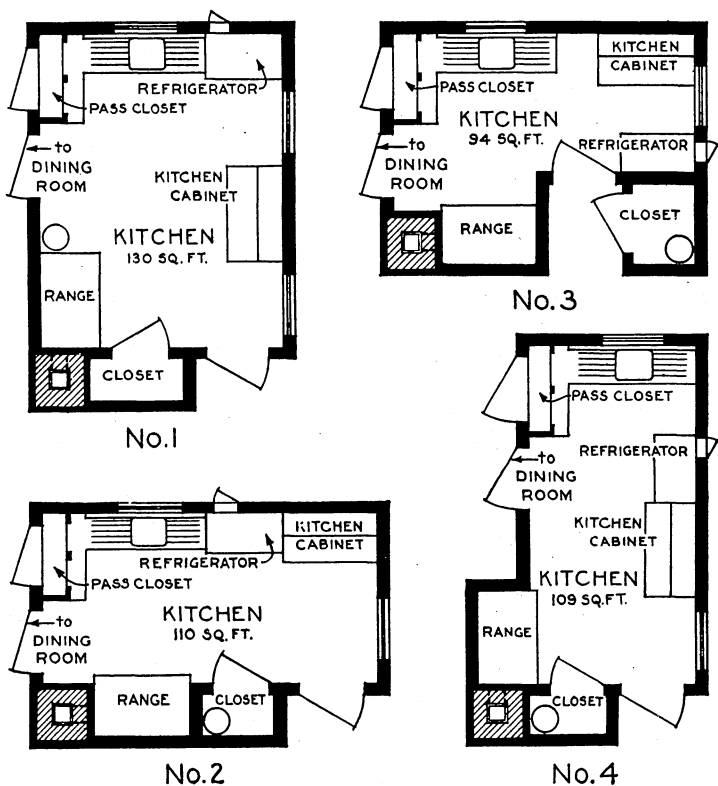


FIG. 3.—Ways of reducing floor space and increasing convenience, though still keeping the same general relations between the kitchen and the rest of the house. A view of one corner of No. 3 is shown in Figure 4 and of No. 4 in Figure 5

be necessary in order to provide wall space for these doors, when by forethought they could have been placed elsewhere to better advantage.

Coal or wood as the cooking fuel generally makes necessary a larger kitchen than gas, oil, or electricity. A coal or wood stove takes up more room; facilities for storage of at least a day's supply of fuel must be provided in the kitchen; and the greater heat radiated from such a stove makes it impossible to work near it with comfort. Some of the larger kitchens illustrated in this bulletin could be reduced in size and made more convenient if allowance did not have to be made for a coal or wood range. On the other hand,

some of the small kitchens shown would be possible only with gas, oil, or electricity as the fuel.

Saving of floor space and the shorter distances to be traversed between work centers in the oblong kitchen as compared with the square are brought out clearly in the series of plans in Figures 1, 2, and 3. The floor plans of two kitchenettes and a view of one are shown in Figures 6 and 7. Some means of saving floor space in these various plans and views are: High windows under which equipment can be placed; a recess with fireproof walls to accommodate the stove (figs. 3 and 5); one piece of equipment built over another, for example, the refrigerator and worktable under the drainboards and the shelves for dishes and supplies over the sink

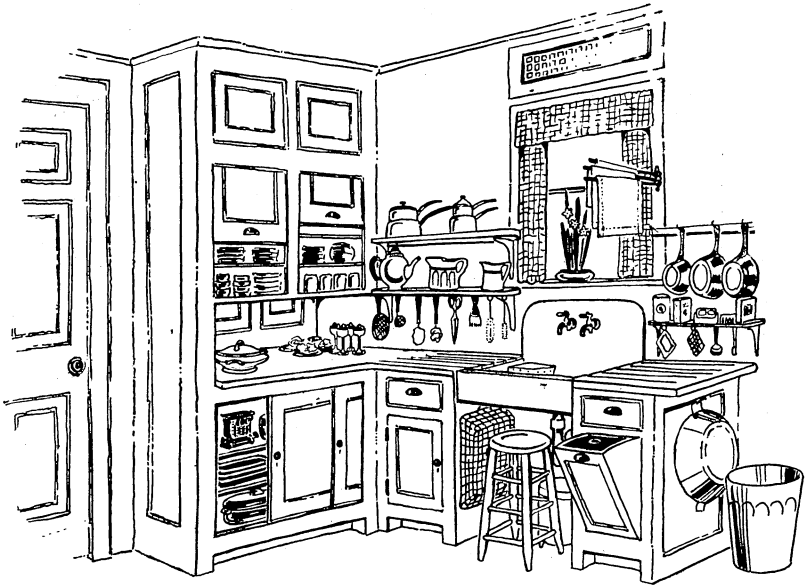


FIG. 4.—Pass cupboard and sink according to plan No. 3, Figure 3

when space is particularly limited. (Fig. 7). Floor space in the small kitchens could have been reduced even further by omitting the serving table or cabinet. This would have decreased the convenience only slightly, because the short distance to the dining room makes it practicable to store china and silver there. A cart for carrying food, dishes, and silver to and from the dining room is particularly useful in such a case.

RELATION OF THE KITCHEN TO THE REST OF THE HOUSE

The connection between dining room and kitchen is of prime importance. A double-swing door leading directly from one to the other is most convenient of all. A pantry between dining room and kitchen has the advantage of cutting off odors and noise; and if equipped with a sink and a china cupboard, table dishes and silver can be washed and stored there, leaving the kitchen free for other

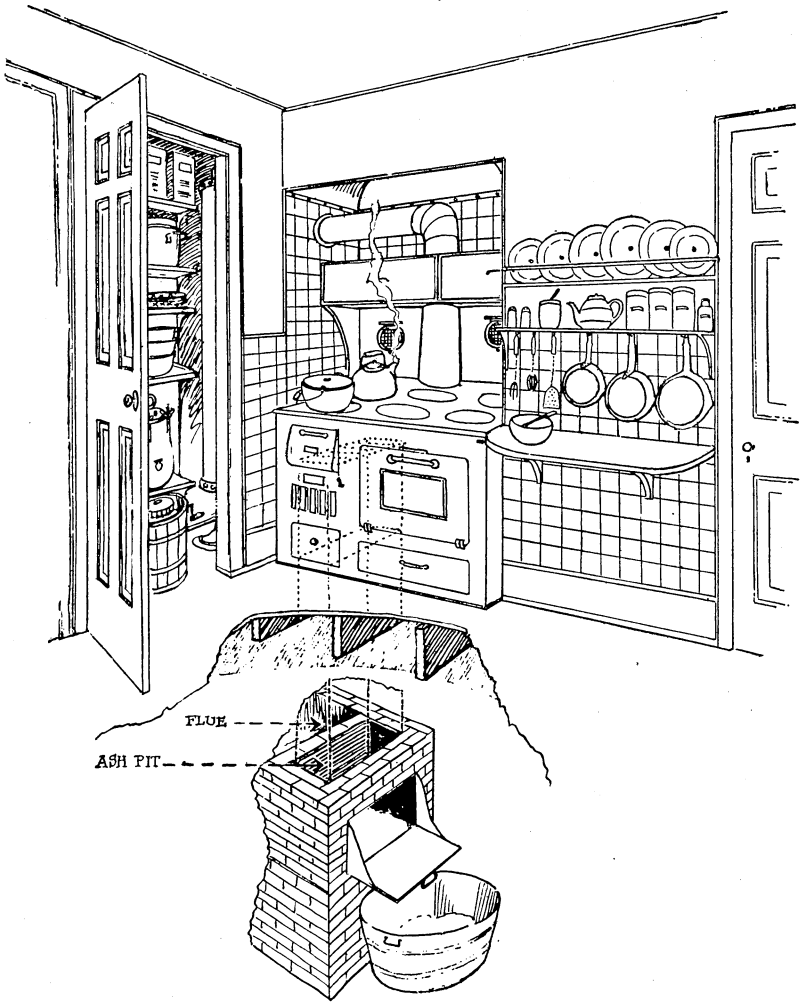


FIG. 5.—A cooking center well separated from the rest of the kitchen from plan No. 4, Figure 3. The hood connected with a ventilation flue carries away odors and steam and a fireproof chute connects with an ash pit in the basement. The walls of the recess in which the range is set must be of fireproof construction

work. Such a pantry, however, even when narrow, does lengthen by several feet the distance to be traveled and adds another doorway between kitchen and dining room. As the name "butler's pantry" often given to it implies, it is better adapted to a large house with servants. For the small house in which the home maker and her family do most of the preparation and serving of food, too much can hardly be said in praise of the pass cabinet as a saver of steps. A number of good kitchen-dining-room connections are shown in Figure 8. In all of these there is either direct or easy access from the dining room to the cupboard, and the sink where dishes must be washed adjoins the cupboard or is close to it.

The relation of the kitchen to other centers, indoors and outdoors, where the home maker works herself or supervises others, is another point to consider. Laundry and furnace room, for instance, should be easily reached from the kitchen. On the farm where the home maker often attends also to the poultry and takes care of the milk and butter in a separate milk house, the location of the kitchen with respect to these work areas should be kept in mind.

There should also be easy access from the kitchen to the entrance doors, to stairs to the second floor and to the cellar, to telephone, and to toilet. In a house with a center hall there can almost always be arranged a short route from the kitchen to the front door that does not lead through living room or dining room.

Is the kitchen to have the prevailing wind in winter or the prevailing breeze in summer? Is it to have sun in morning, afternoon, or throughout most of the day? What shall be the outlook from the windows? If it is a farm kitchen, shall it command a view of the road or the farmyard, or can a glimpse of both be managed? These

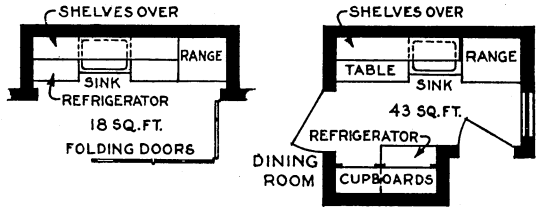


FIG. 6.—Two kitchenettes, showing how everything needed for preparing food for a few persons can be arranged conveniently in very limited space. A view of the smaller one, which is shut off by means of a folding door, is given in Figure 7

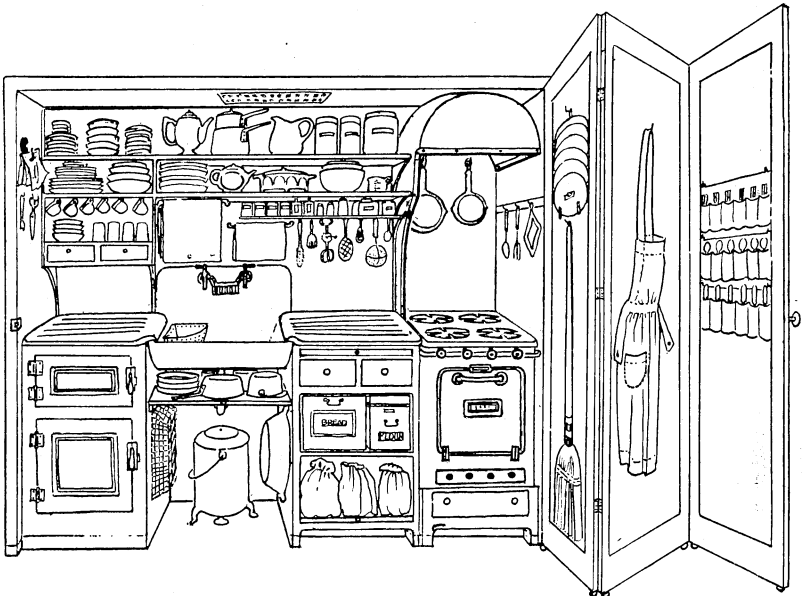


FIG. 7.—A kitchenette equipped according to one of the plans in Figure 6, with practically every foot of wall and floor space utilized

are also important questions which should influence the location of the kitchen. The answers depend partly on climate and partly on personal preference. In a hot climate the kitchens should if possible open onto a screened porch, and in any case the outlook should be made pleasant. A trellis of vines, a hedge, or a row of Lombardy

poplars are an effective screen for many undesirable features. The sand box or swing for the children can often be located in view of a kitchen window so that an eye can be kept on them at play.

DOORS AND WINDOWS

Doors should be placed along one wall or in an end of the kitchen so as to leave the work centers free. If the kitchen must serve as the passageway from out of doors to other rooms or from one part of the house to another, the lines of travel should be kept away from the work centers. There should be as few doors as possible. If several are necessary, they should be placed with extra care. Kitchens convenient in spite of having four and five doors are shown in Figures 9 and 12. Space for doors to swing and to stand open and the direction in which they swing are also important points. If swung in the right direction, even a partly open door will still screen the view from the dining room or hall into the kitchen.

In order to supply adequate light and ventilation, it is a good plan to have

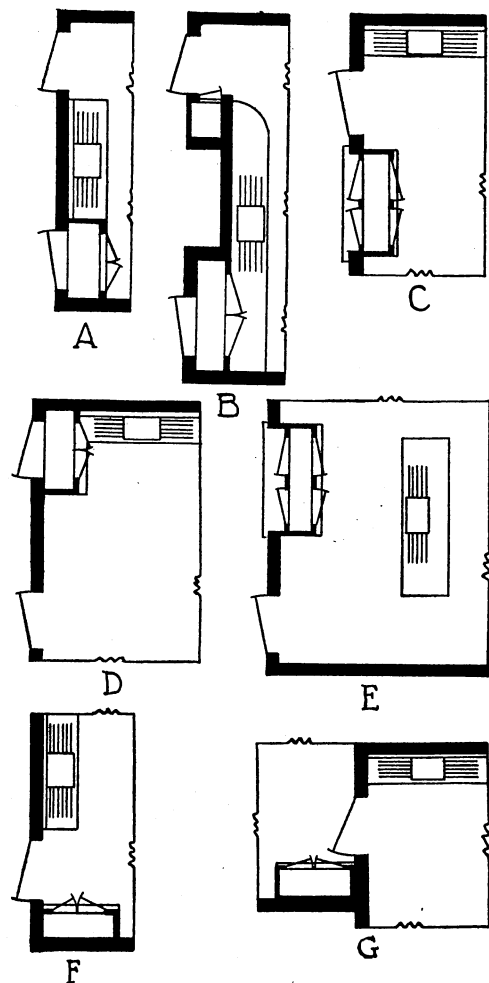


FIG. 8.—Good connections between dining room and kitchen. Different groupings of sink and pass cabinet or pass closet are given in A, B, C, D, and E. A one-way cupboard is satisfactory if it is close to the dining-room door (F, G)

windows in two walls, or one or two windows in one wall and an outside door in another. This insures a cross draft to carry away heat and odors, though the stove should be placed if possible so that the draft does not strike it directly. The outside door should have a screened transom for ventilation, and, if needed, should have glass in the upper part for light.

Windows should extend as near the ceiling as possible. Then when the top sash is lowered, the upper part of the kitchen can be aired and there is less accumulation near the ceiling of odors that gradually make their way through the house. A ventilator in the top sash or over the window is also desirable (fig. 4), for opening windows at the top is likely to injure the shades. This may be prevented somewhat by setting the shades down 6 or 8 inches from the top, but this gives a rather unsightly appearance to the outside of the house. Windows that are also set high from the floor allow space for equipment under them, and this provides good lighting at sink, worktable, and other centers where it is especially needed.

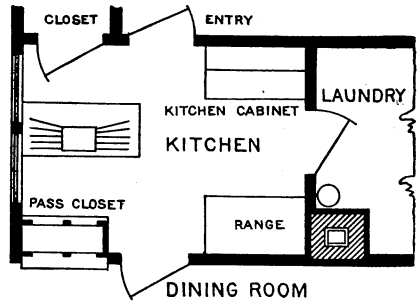


FIG. 9.—An energy-saving kitchen. The sink is conveniently placed for food preparation and for dishwashing and is exceptionally well lighted by the two windows. In spite of having four doors in three walls, this kitchen is small and well arranged. A view of one side is shown in Figure 10



FIG. 10.—A sink arrangement that saves wall space. The floor plan of the kitchen is given in Figure 9

The type of sash used in kitchen windows is generally determined by that in the rest of the house. It should be remembered, however, that several small window panes are harder to wash than a large one and that when the woodwork is refinished the moldings around the small panes require more work. They also cut off some light.

Curtains for kitchen windows should be washable and so arranged that they do not shut out needed light and air. Shepherd's plaid gingham in a color harmonious with walls and floor covering, or unbleached muslin with a border or piping of gingham or with the hem couched down with bright mercerized floss, makes attractive, inexpensive, and durable kitchen curtains. Oilcloth mounted on rollers in the same way as Holland cloth makes excellent kitchen shades. They are not affected by steam and grease, can be cleaned easily, and if made of an attractive color and perhaps finished across the top with a plain valance are decorative enough to take the place of curtains.

Fly-proof screens for windows and outside doors are a matter of health. For comfort and convenience, also, they should extend over the whole of the windows. As an extra precaution against flies even the door leading from a screened porch into the kitchen may be screened.

ARTIFICIAL LIGHTING

Good artificial light is just as much needed as daylight at sink, stove, table, and all other work centers. The artificial lights should be arranged so as to prevent glare and so that a person at any one of the important centers does not have to work in his own shadow. Frosted bulbs or translucent shades will help to diffuse the light and cut off glare. Kerosene lamps should be supported on brackets above the work centers (figs. 19 and 20), and can be made more effective with reflectors behind them.

If meals are served in a corner of the kitchen, it is pleasant to have a light that illuminates this part only. Then after other lights are put out, the dining corner seems to be shut off from the rest of the kitchen.

An electric light above the sink should if possible be controlled by a switch. If that is impracticable, all members of the household should at least be warned never to touch this fixture and any part of the plumbing at the same time, lest some part of the fixture be imperfectly grounded. Severe and even fatal shock has resulted from the current passing through the body from an ungrounded electric fixture to a grounded water pipe. The moisture likely to be on the hands and on the electric cord and fixture increases the danger. A more detailed discussion of the hazards from electrical appliances in the household are given in a bulletin of the United States Bureau of Standards.³

³ United States Department of Commerce, Bureau of Standards. 1918. Safety for the household. U. S. Dept. Com., Bur. Standards Circ. 75, 127 p., illus.

FLOORS, WALLS, AND WOODWORK

The ideal kitchen floor is durable, comfortable to walk and stand on, smooth but not slippery, easy to clean, not injured by grease and water, and attractive in color and appearance. The wooden floor finished with paint or oil or covered with a good quality of plain or inlaid linoleum meets many of these requirements. Methods of finishing various kinds of floors and of laying linoleum are given in another bulletin of this series.⁴

For the walls, smooth hard plaster finished with good quality oil paint is perhaps most satisfactory.⁵ Oil paint will stand repeated washings with lukewarm suds made from neutral soap, and can be renewed easily. Wall oil-cloth applied like wall paper can also be washed with fair success if water does not get into the seams. If ordinary wall paper must be used, a coat of varnish brushed on after it is hung will help to prevent steam from loosening the paper and will give it a more durable finish. The glaze on oil-cloth and varnished wall paper, however, is irritating to the eyes.

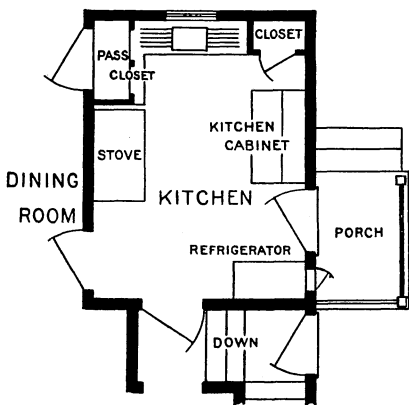


FIG. 11.—A compact work area. The paths of travel from the back door and hall do not cross the work centers. A view of this kitchen is shown in the cover design

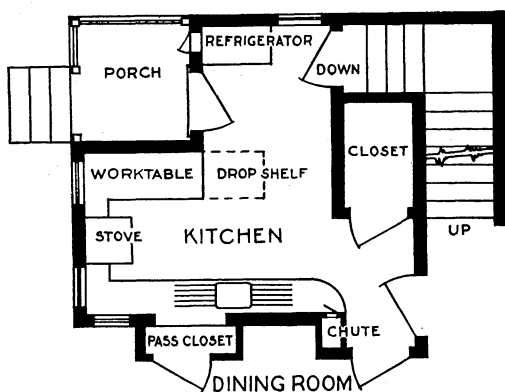


FIG. 12.—A kitchen convenient in spite of its irregular shape and five doors. The work centers are all away from lines of travel and well placed in relation to each other

designed to shed dirt rather than to form a resting place for it. Woodwork finished with the same oil paint used on the walls is

A wooden strip or molding 4 or 5 feet above the floor cuts off the lower part that receives hardest wear. (Figs. 14 and 16.) If painted or stained a different tone from the rest of the wall, this dado prevents differences in the two sections from showing up and the lower can be washed or refinished without making the other look shabby.

The woodwork should be plain, and there should be as little of it as possible. The baseboard especially should be de-

⁴ United States Department of Agriculture, Bureau of Home Economics. 1921. Floors and floor coverings. U. S. Dept. Agr., Farmers' Bul. 1219, 30 p., illus.

⁵ Holman, H. P. 1925. Painting on the farm. U. S. Dept. Agr., Farmers' Bul. 1452, 33 p.

economical of time and materials. Spar varnish applied after the wood is stained gives a smooth durable finish. For some kinds of wood, oil well rubbed in is satisfactory.

The color in which walls and woodwork are finished should depend on the lighting of the room and on its exposure. Light tans and grays with enough yellow to give them life are generally best because they are neutral, do not show soil quickly, and yet reflect considerable light.

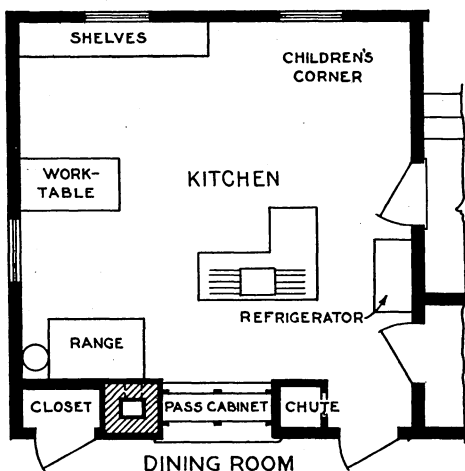


FIG. 13.—A large farm kitchen made more convenient by good arrangement of work centers. Views of two sides and of the combination sink and worktable are shown in Figures 14, 15, and 16

in it, and in scale with each other. Oftentimes the home maker allows herself to be carried away by her enthusiasm for some particular cabinet or stove, and only after it is installed in her

SELECTION OF LARGE EQUIPMENT

Stove, sink, worktable, and other large pieces of equipment should be chosen with regard to the wall and floor space they will occupy. They should also be in proportion to the size of the kitchen and to the work done

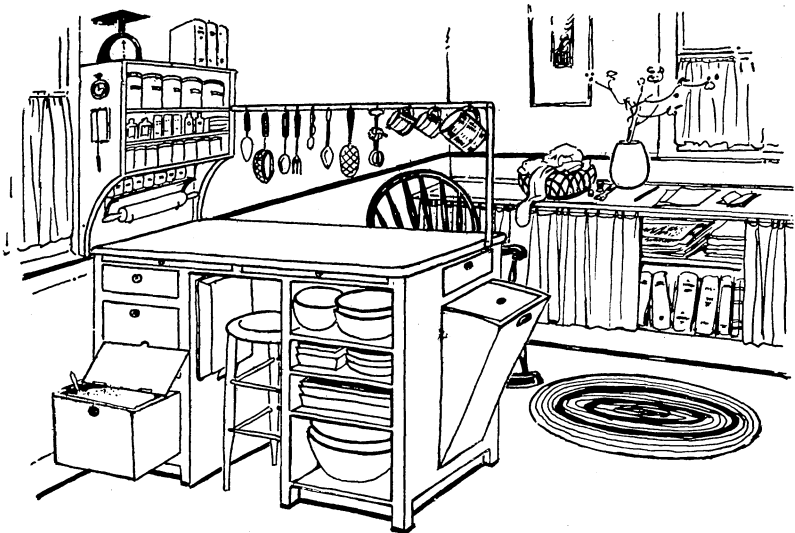


FIG. 14.—Rest corner and worktable from the plan given in Figure 13. A kitchen cabinet might have been set in the same position as the worktable and shelves or pockets arranged on the back for sewing materials or for magazines

kitchen does she find that it occupies more than a fair share of space or is too large or too small for her needs. Or if equipment is being built in, she overindulges in cupboards, with the result that not enough space is left for something else equally important. Careful measurement of available space is one of the first steps in selection of large equipment.

Whether to buy or build worktable, cabinet, and cupboards, and whether they are to be movable or built in as a permanent part of the room are also questions for early consideration. Cabinetmaking is a highly specialized branch of carpentry. Few carpenters can build a kitchen cabinet equal to the factory product, and in the end the cost is often

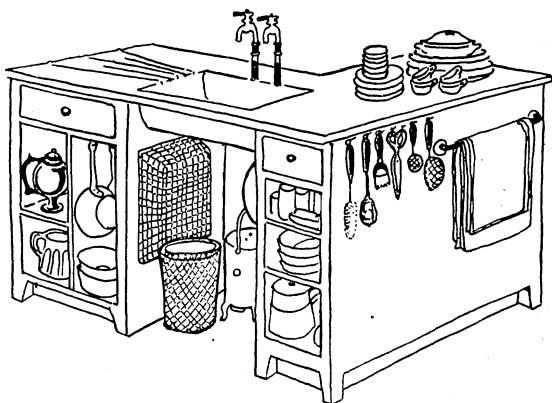


FIG. 15.—A sink and worktable for the center of the room, suitable for use in a large kitchen (figs. 13 and 16)

about the same. On the other hand, a specially built cabinet can be made to fit any space and to meet the home maker's own requirements. Before deciding which kind to install, a carpenter's estimate should at least be compared with the price of factory-made furnishings of the many portable and built-in styles

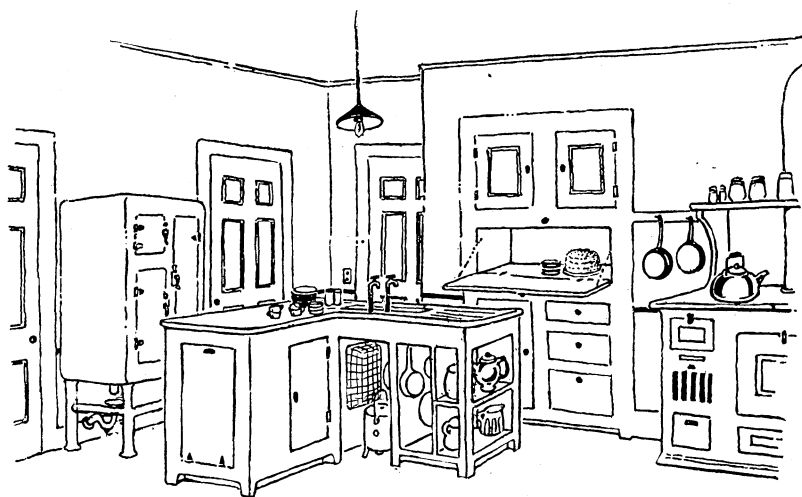


FIG. 16.—The centers for food preparation, cooking, and serving brought close together in part of a large kitchen (fig. 13), leaving one side for a rest corner and play place for children. The sink is built into a worktable and set out into the room in order to shorten the distances to be traveled

now on the market. The chief advantage of built-in equipment is that being joined directly to floor and wall there are fewer dust-collecting spaces around it, and the amount of floor and wall to be cleaned and refinished is reduced to the minimum. For the family in temporary quarters, there is of course no question that movable furnishings are more economical.

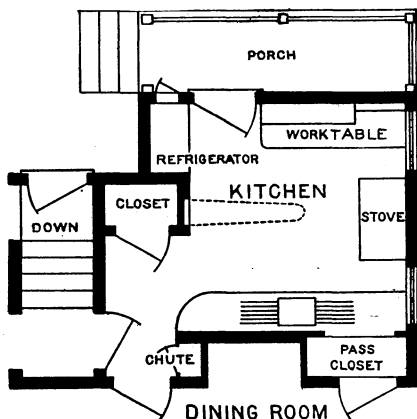


FIG. 17.—Convenience in a small area. The work centers are well arranged in relation to each other and to the room, and the plan as a whole illustrates good kitchen management. Views are given in Figures 18, 19, and 20

Height of working surfaces is another important point that should not be overlooked before large equipment is bought or built in. The tendency is to place working surfaces too low. Washing dishes, stirring foods, kneading, rolling, ironing, and the various other

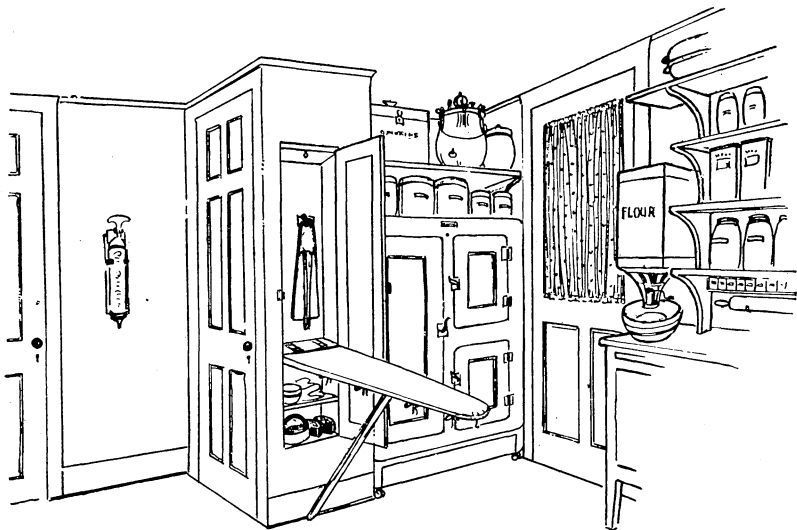


FIG. 18.—A section of the kitchen given in the plan in Figure 17, showing built-in refrigerator and ironing board

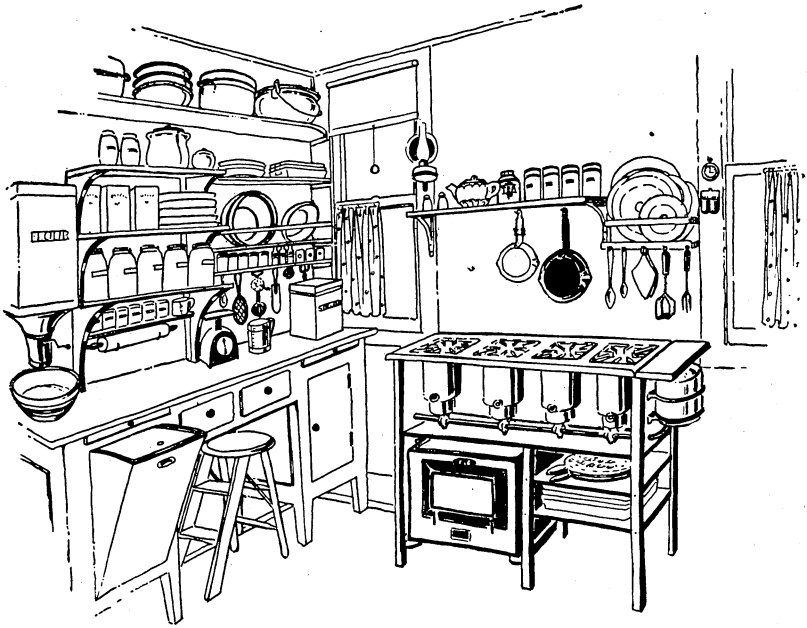


FIG. 19.—Another view of the kitchen plan in Figure 17, with good provision for light at night as well as during the day. A fireproof support for the oil stove might be made similar to the design shown here



FIG. 20.—Sink and pass cabinet as shown in the plan in Figure 17. The small door in the jog in the wall at the right opens into the clothes chute

kinds of kitchen work can not all be done comfortably at the same level. Just what the right heights are for the individual worker depends on her own height and build, particularly her length of arm. By a few tests of the different jobs at various heights any home maker can find out what is the best for her sink, worktable, cabinet, and ironing board. This is likely to be far more satisfactory than following a list of average heights based on general measurements. If a very tall and a very short person are to work in the same kitchen, the equipment should generally be set at the right height for the taller and stools and platforms provided for the comfort of the shorter person. Some such arrangement should also be made for children who work in the kitchen. Some ready made kitchen tables and cabinets have exchangeable legs of various heights, and others can often be adjusted satisfactorily with blocks of wood.

Toe room should be allowed under all equipment at which the worker must stand. Sometimes this is provided by having the working surface extend 4 or 5 inches beyond the line of the base, or by having the equipment raised above the floor on legs, or by recessing for 3 or 4 inches the solid base next to the floor. The cabinets and worktables in a number of the kitchens illustrated have solid bases which are recessed in this way to give comfortable toe room. If kitchen equipment is set on legs, they should be long enough to permit a broom and a mop to be pushed under easily.

There should also be knee room under sink and worktable so that the worker can sit comfortably as she washes dishes and prepares food. This space can be provided by an opening in the center of the worktable like that in a business desk (figs. 14, 19, and 24) or by having a sliding or hinged leaf as an extension of the table top.

In addition to these general points that apply to several of the large pieces of equipment, there are the following special features about each one that make for convenience and should be studied carefully so that the best possible choice can be made:

STOVE

The kind of fuel available determines in large measure what kind of stove shall be used. If the stove for cooking must be depended on to heat the kitchen in winter and if a tank for supplying hot water for the whole household must be connected with the kitchen stove, choice becomes even more limited. Sometimes, however, it is possible to have two stoves, a wood or coal range for winter use and a gas, oil, or electric stove for summer, or a combination gas and coal stove. The stove not in use can be covered and made to serve as a table and in this way even a small kitchen can accommodate two stoves.

To make cleaning easy the stove should be simple in design and without dust-collecting ornaments. An enameled surface is also a great advantage.

The position of the oven is one of the important points to look for in choosing a gas, electric, or liquid-fuel stove. High ovens are more convenient than those to which one must stoop and they are likely to get better light. Unfortunately most stoves with high ovens

require considerable space, but some compact styles now available do not take up more floor space than the ordinary gas range with

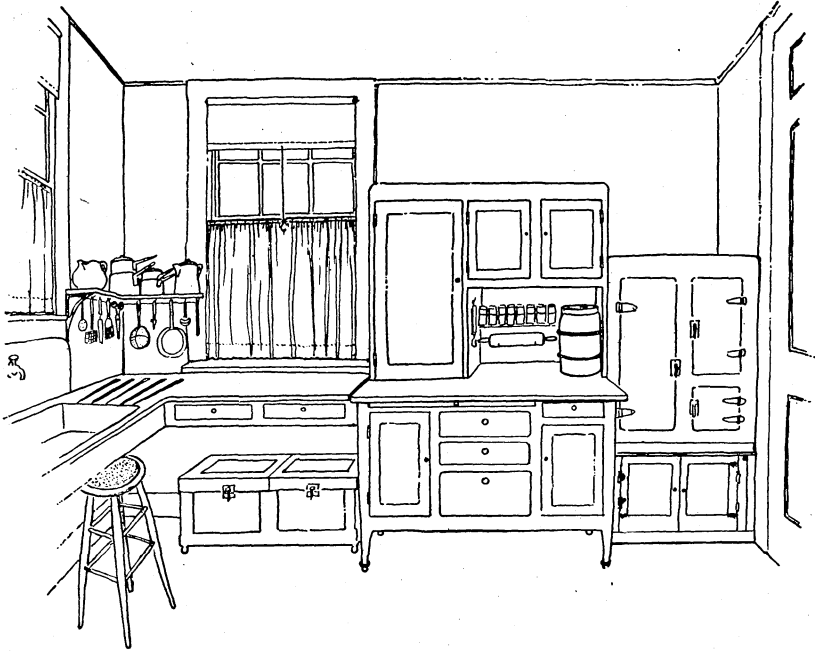


FIG. 21.—One side of the kitchen plan given in Figure 22. Working equipment is grouped close together so as to leave the other end for the dining table and chairs. Both parts are well lighted by two windows

low oven. In some gas ranges the oven is on the left, in others on the right of the burners, and in some kitchens this may make considerable difference in convenience. The direction in which the oven door swings is another point to watch for in selecting a stove for a particular location. Glass in the oven door and an automatic temperature regulator are also great conveniences.

A hood that overhangs the range and is connected with a ventilation flue is a help in keeping the kitchen cool and free from odors. (Figs. 5 and 7.) Such a ventilation flue can be put in without great expense when a house is being built. The gas range should also have a pipe connection with a ventilation flue.

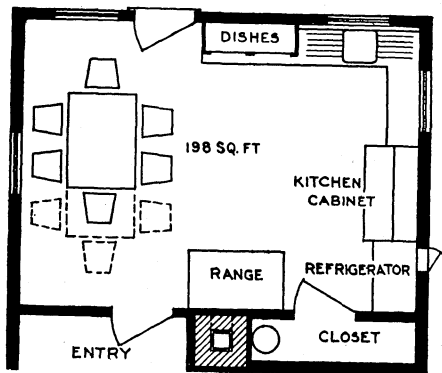


FIG. 22.—Kitchen and dining room combined. The arrangement is as compact as possible, yet the floor area is 198 square feet. Compare this with the small kitchens shown in Figures 30 and 31, in which 198 square feet is enough for a kitchen and a small dining room or alcove

The legs of the stove may be removed and it may be mounted on a solid base or in the case of a gas or electric stove hung from hooks in the wall in the same way as a sink in order to bring it to convenient height and to make cleaning around or under the stove easy. Every precaution should be taken, however, against fire risk.

When the range heats water for the hot-water system of the house, the boiler is often set on a low support near the range. This takes up floor space and oftentimes cuts off direct access to one side of the range. A better arrangement may be to place the boiler in another room, a closet, or a passageway where the heat radiated will be less troublesome in hot weather and of more service in cold weather. (Figs. 3, 9, 22, 27, 30, and 31.) Or the heat may be conserved by covering the tank with sheet asbestos. If cloth is put over the asbestos and then painted, dust will collect on it less easily. In no case, however, must the boiler be set lower than the source of heat because of the necessary circulation of water.

A box for coal and wood that can be filled from the outside in the same way as a refrigerator equipped for outside icing, or a box arranged to be drawn up like a dumb-waiter from the basement where the main supply of coal or wood is stored, saves many steps.

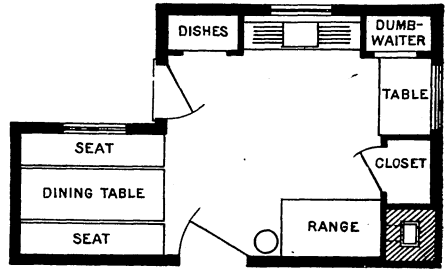


FIG. 23.—A small kitchen with dining alcove

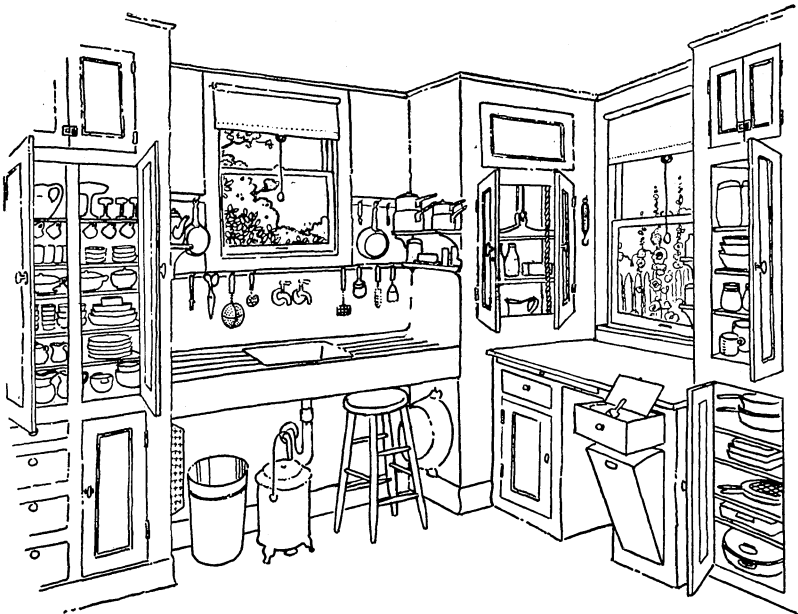


FIG. 24.—Sink, worktable, and cupboards from the plan in Figure 23. A dumb-waiter to the cellar takes the place of a refrigerator

If neither of these arrangements is possible, the fuel box may be put on casters and rolled from the door nearest the supply to the stove. The ash dump consisting of a fireproof chute from the stove and a tight fireproof receiver in the basement is another great labor saver when coal or wood is the fuel. (Fig. 5.)

SINK

A sink connected with a plentiful supply of hot and cold running water and with a sanitary drainage system probably saves more labor than any other one piece of equipment that can be installed in the kitchen. White enamel ware is the material generally preferred for the sink, and the type with high back and drainboards made in one piece is easiest to clean. Wooden drainboards are less expensive and can be made so that they are thoroughly satisfactory. Whatever material is chosen for the drainboards there should if possible be one at each end of the sink. In washing dishes, for example, they can be stacked on one and drained on the other as near as possible to the cupboard where they are stored. One of the boards may be hinged so that it can be dropped down out of the way if there is not room for two stationary boards. If there is no possible way of arranging but one drainboard, it should be placed on the left for a right-handed person, for that is where dishes are naturally set after they are washed. The worktable, or a kitchen cart, or any other flat surface on the right can be used for stacking.

The sink is usually placed against the wall and supported on legs or hung from wall hooks, or it may be set out into the room and combined with the worktable. (Figs. 10, 15, and 16.) In any case the sink should be placed high enough so that the worker does not have to stoop over it. This goes so far toward preventing tired backs that it pays to experiment, for instance on a table with boxes of various heights, until the right height for the sink is found. The drainboards and the bottom of the sink are all working surfaces and must be considered in estimating what the proper height shall be. Thirty-six inches from the rim to the floor for the sink of average depth is often recommended. Some sinks are now made with adjustable legs, and others may be raised with blocks of wood or piping.

The space directly under the sink should be left open so that the plumbing can be reached easily for repairs and so that the worker has room for her knees as she sits there at various tasks. A cupboard under the sink is very likely to be damp and to provide a breeding place for water bugs because of the moisture that condenses on the underpart of the sink. Cupboards may be built, however, under properly constructed drainboards. (Figs. 4, 7, and 20.)

Other bulletins issued by the Department of Agriculture give information on water and sewage disposal systems and methods of installing and repairing plumbing in the farm home.⁶

⁶ Warren, G. M.: 1922. Sewage and sewerage of farm homes. U. S. Dept. Agr., Farmers' Bul. 1227, 56 p., illus.

1924. Farm Plumbing. U. S. Dept. Agr., Farmers' Bul. 1426, 34 p., illus.

1925. Farmstead water supply. U. S. Dept. Agr., Farmers' Bul. 1448, 38 p., illus.

1925. Simple plumbing repairs in the home. U. S. Dept. Agr., Farmers' Bul. 1460, 14 p., illus.

WORKTABLE AND CABINET

The old-fashioned kitchen table which provided only a working surface and a drawer or two for small articles is giving way to the worktable or cabinet. Various styles that may be built or bought ready made are shown in Figures 14, 19, 21, 24, and 28. Whether buying or building, the important points are: Substantial tight con-

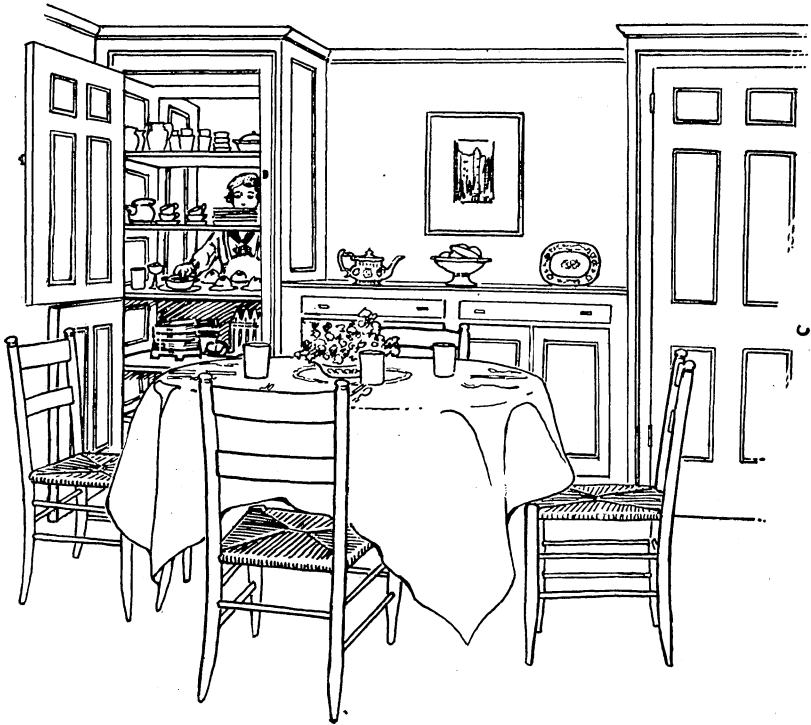


FIG. 25.—A pass closet built into the wall between dining room and kitchen. This is easier to build than the cabinet (fig. 26), but less decorative from the dining-room side

struction that affords no harbors for household pests; material that is easily cleaned; and drawers or compartments suitable in size and shape for the articles that must be stored in them.

SERVING TABLE OR SHELF

It makes for convenience if a definite place separate from the preparation center is provided for serving food. A table, a drop shelf, or a pass closet or cabinet will answer the purpose. Especially for the home maker who does her own work the two-way, or pass, arrangement built into the wall between dining room and kitchen with shelves for storing dishes accessible from both sides, is of untold convenience. Whether it shall be a closet or a cabinet is largely a matter of expense and of the effect desired on the dining-room side. A pass closet is cheaper to build because it consists only of shelves with a full-sized standard door sawed in two so that the upper

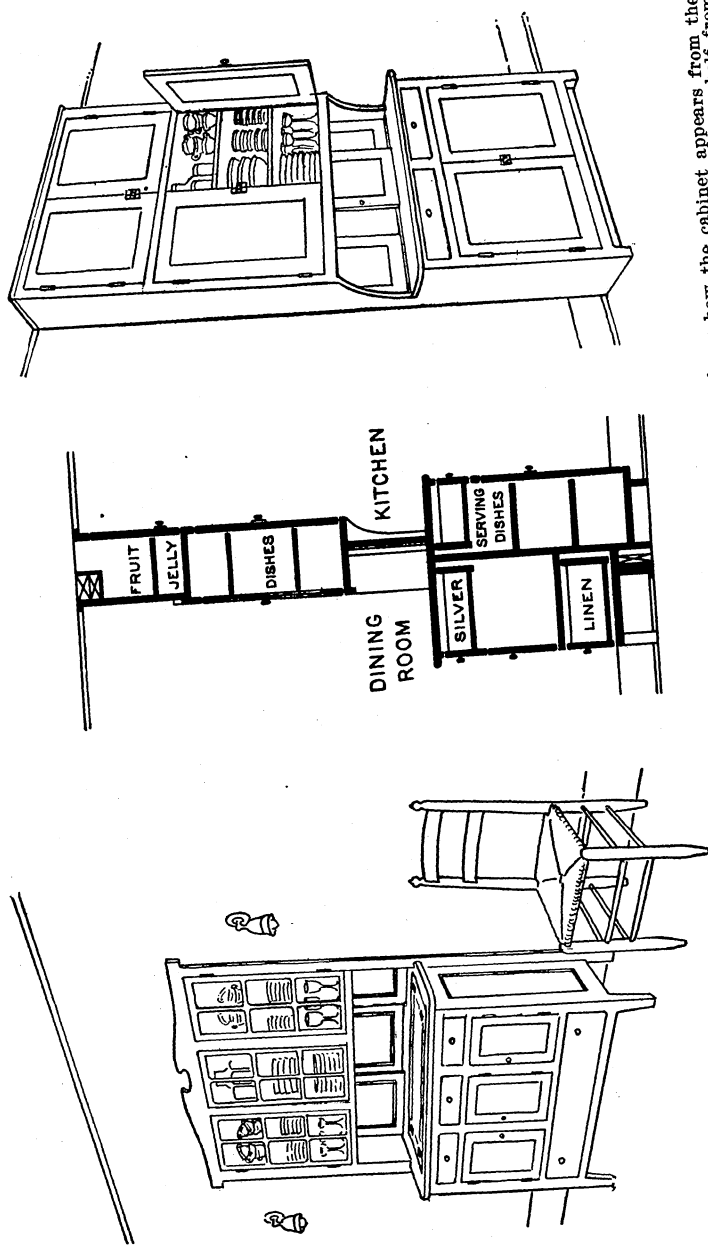


FIG. 26.—A pass cabinet that may take the place of the sideboard. The left drawing shows how the cabinet appears from the dining-room side; the right drawing, from the kitchen side. Sliding panels make it possible to reach the serving shelf from either side. The center drawing is a vertical cross section of the cabinet through the partition wall showing the arrangement of cupboards and drawers.

half can be opened separately. (Fig. 25.) The pass closet can be located near a corner or at almost any point in the wall. The cabinet must be carefully placed in the wall space and requires careful workmanship and oftentimes specially made doors and fittings. These make it expensive. If it is to take the place of a sideboard or china closet, it should harmonize in design with the rest of the dining-room furniture and be equally well made. Only a table and chairs, however, may be needed in addition to complete the furnishing of the room, and the cost of the built-in cabinet may be justifiable. A design for a combination sideboard and china closet with shelves accessible from both rooms is shown in Figure 26. Other arrangements are shown in Figures 4, 10, 16, and 20.

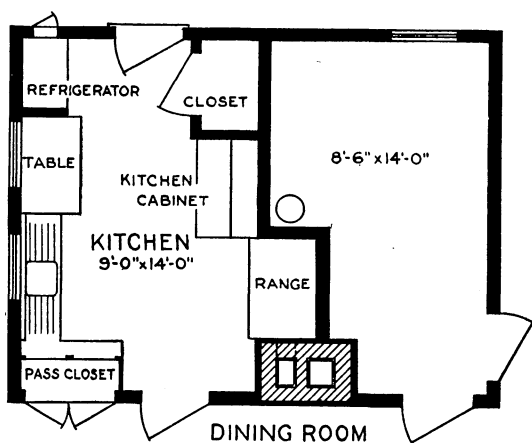
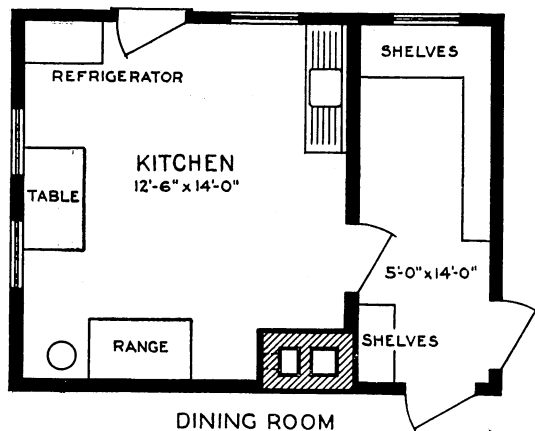


FIG. 27.—Plan for remodeling kitchen and pantry. In the second plan the kitchen is made smaller, work centers are brought closer together, a direct connection is made to the dining room, and the adjoining room is made large enough for a laundry or a bedroom. The walls around the range in the recess must be made fireproof. A view of one corner of the remodeled kitchen is given in Figure 28

CUPBOARDS AND STORAGE CLOSETS

Wood or metal cupboards or a closet with shelves and hooks is generally needed for storing the utensils and supplies that can not be kept in the worktable or cabinet and the pass closet. Small cupboards hung on the wall and open shelves and hooks for the things in frequent use are an aid in grouping the equipment where it is needed. Brushes and scissors for preparing vegetables,

strainers, and corkscrews can all be hung on hooks just over the sink. In any case the width of the shelves and the space between them should be planned to fit the articles to be placed on them. Much space is often lost by having shelves too far apart and too wide. Many arrangements for cupboards, shelves, and storage closets are given in the figures in this bulletin.

REFRIGERATOR AND COLD CUPBOARD

Some arrangement for keeping perishable foods cold and clean during summer and winter is necessary. A refrigerator in the kitchen is probably the most convenient of all, especially if equipped for outside icing and provided with a drainage connection, or if electrically operated. The door for outside icing has the additional advantage that in cold weather it can be screened and left open and the refrigerator cooled without ice.

In selecting a refrigerator the first points for the home maker to look for are the amount and arrangement of storage space as compared with the needs of her own household. Various shapes of refrigerators are on the market, differing chiefly in the position of the ice chamber or the refrigerating unit. Care should be taken to

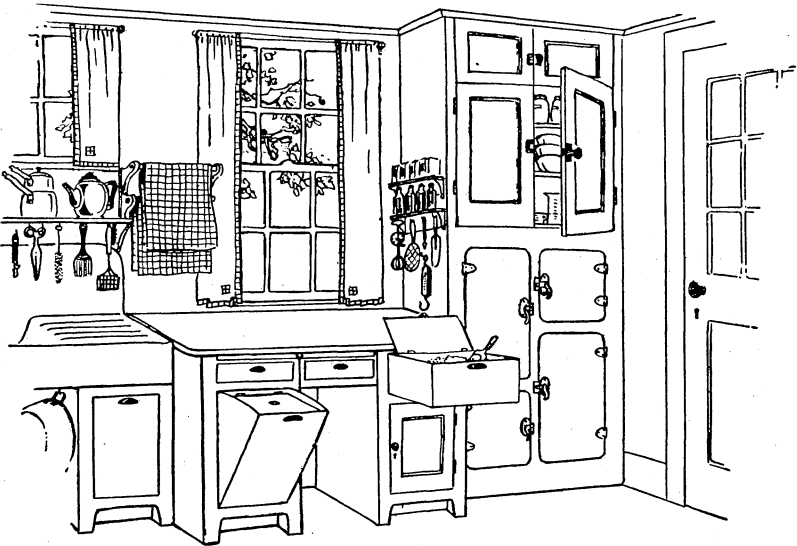


FIG. 28.—Good use of wall space, according to the plan in Figure 27. The high window over the sink gives good light and ventilation

choose one that will fit into the wall and floor space available. Some styles are broad and low, whereas others are high and narrow so that they take up relatively little floor space and not much of the wall horizontally. Also some are iced from the top, some from the side or top of the front, and others from the back through a door in the wall; or a refrigerating machine operated by motor may take the place of ice for cooling. Space can sometimes be saved in the kitchen by putting the motor in another room. If ice is used, how much the refrigerator will hold should be considered in connection with how often ice can be put in. The ice chamber should be large enough to hold at least a two-days' supply. Shelves should be so arranged that bottles of milk and other very perishable foods may be kept in the coldest part, which is generally directly under the ice chamber.

The insulation of a refrigerator has an important effect on the temperature that can be maintained in it. Several kinds of good

materials are now used for this purpose, but it is also necessary that the insulation be thick enough. Tests conducted by the United States Bureau of Standards⁷ show that in order to maintain the temperature necessary to keep foods properly, a household refrigerator of medium size should have on the top and sides 1½ inches of insulating material and 3 inches on the bottom. Large refrigerators need thicker insulation than this. Tight-fitting doors with secure fastenings and substantial construction throughout also help in keeping the proper temperature. The number of doors and the way they swing should also be noted. The lining of the refrigerator should be easy to clean, with as few crevices as possible in which bacteria may develop, and preferably of a material on which moisture does not tend to condense. In several ways, wood finished with enamel makes a good lining for a refrigerator. All the inside construction, including the drainpipe, should be examined to see whether it can be easily and thoroughly cleaned.⁸ A rust-proof pan of good size should be provided to catch the drip, or if possible there should be a permanent drainage connection to carry away the waste.

Most refrigerators are mounted on casters, and are not raised much above the floor; hence cleaning under them is difficult, and one has to stoop when getting supplies in and out. Without much expense or difficulty a refrigerator can be built up on a base of iron piping. (Fig. 16.) The space above a refrigerator can be used to good advantage for storage. (Figs. 18 and 28.)

In some climates a cold closet serves instead of a refrigerator. For example, where the air is cool and dry, there may be a draft cooler with openings from top and bottom to the outside of the house or from the bottom to the cellar. The openings should have cloth screens and tight covers to be used when needed to keep out dust.

A dumb-waiter from the kitchen to a cool, screened part of the cellar may also be used for storing perishable foods. (Fig. 24.)

WORK CENTERS

The grouping of equipment, small as well as large pieces, into work centers is one of the most important and oftentimes one of the easiest things to accomplish in making a kitchen convenient. Equally important but in some cases more difficult to bring about is the relation of the work centers to one another and to the room as a whole. They should be so placed that the various activities in the daily routine go from one center to the next without confusion, so that there is good light at each, and so that the necessary passing of persons through the kitchen does not interfere with the work. A shelf or table by the back door for incoming supplies will cut down the traffic across the kitchen floor and prevent the tracking in of much dirt. (Fig. 12.)

Preparation of raw foods, cooking, serving, and clearing away and dishwashing are four activities that follow each other every day, and several times a day in most kitchens. Compact centers for these

⁷ United States Department of Commerce, Bureau of Standards. 1915. Measurements for the household. U. S. Dept. Com., Bur. Standards Circ. 55, 149 p., illus.

⁸ MacLeod, S. J. 1924. Housecleaning made easier. U. S. Dept. Agr., Farmers' Bul. 1180, 18 p., illus.

jobs should therefore follow the same order around the room from left to right, since for the right-handed person work generally moves conveniently in this direction. The centers for serving and for clearing away and dishwashing should be nearest the dining room and close together. Dishes and silver can then be washed and put away all within the space of a few square feet, and are just where they are wanted for use at the next meal. The plans given throughout this bulletin show how easily and practically such arrangement works out on the four walls of the kitchen.

RAW FOOD PREPARATION CENTER

Raw food is prepared chiefly at sink and worktable. At the sink, fruits and vegetables are washed and pared, and utensils are filled with water for cooking. Near the sink, then, should be kept brushes, knives, colander, strainers, and similar tools; stewpans, double boilers, and other utensils that are filled with water before they are put on the stove; and a garbage can. Small stores of the less perishable fruits and vegetables may be kept in a cupboard or bin under one of the drainboards. At the worktable are needed sugar, flour, salt, spices, and other dry groceries, and mixing bowls and spoons, measuring cups, molding board, rolling-pin, food chopper, bread and cake pans, and all such utensils, large and small, needed frequently in mixing and getting food ready to cook or serve. The refrigerator or cold closet, where butter, eggs, and other perishables are kept, should be near the worktable, if possible.

COOKING CENTER

Near the stove should be grouped frying pans and other utensils that are put on the stove to heat before food is placed in them; pan covers, forks, spoons, and ladles used in cooking and dishing up food; and salt and pepper. Many of these utensils can be hung on the wall, especially if a sheet of zinc or composition material is tacked over the plaster, and space can generally be found for a narrow shelf for the rest.

SERVING CENTER

At the serving center should be table china, glassware, and silver; table cooking appliances such as the electric toaster; and bread, crackers, cake, and other ready-to-serve foods that can be kept at room temperature. Space for setting out foods ready to serve should also be allowed. Further details about the place for serving are given on page 20.

CLEARING AWAY AND DISH WASHING CENTER

The sink is of course the most important feature in this center. On shelves or hooks or in cupboards near it should be kept the small articles needed for this job, and a garbage can should be close at hand. The closet or cabinet for china and silver really belongs in this as well as in the serving center, and one of the most convenient arrangements possible is to have the china closet adjoining one of the drainboards. If the china closet can not be so near, a wheeled tray or some other quick and easy method of transferring the dishes may be devised.

LAUNDRY CENTER

The kitchen is not the proper place for laundry work; nevertheless it must often be done there. In that case, the equipment should be placed so that it interferes as little as possible with the work centers for the preparation and serving of food. (Fig. 29.) A stationary tub may be placed under a hinged drainboard of the sink or the cover over one or two such tubs may serve as a worktable. An ironing board folding into a wall cabinet, which also holds irons and the needed supplies, is shown in Figure 18. Good lighting, good ventilation on a hot day, and nearness to the stove, if the irons must be

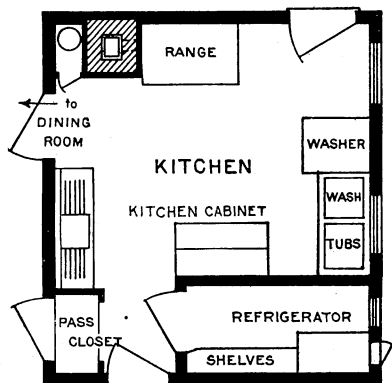


FIG. 29.—Kitchen with laundry equipment grouped on one wall, so that it is out of the way of the food preparation center

heated there, are three points to remember in locating it. The cabinet for the ironing board can sometimes be put in the dining alcove. A separate laundry made by remodeling a large kitchen is indicated in Figure 30, Plan 2. Laundry equipment and its arrangement is discussed in detail in another bulletin.⁹

DINING ALCOVE

If meals are to be served in the kitchen, a corner or an adjoining alcove should be reserved for the table and chairs. (Figs. 22 and 23.) If possible this should be near the serving table and arranged to face

away from rather than toward the sink and stove and to include a window with a pleasant view or perhaps an outdoor box filled with evergreens or flowering plants.

SOCIAL CORNER

Especially in a large kitchen space can usually be found for a comfortable chair and small table or shelf for mending basket or books. Here the home maker can drop down for an occasional rest while keeping an eye on food that is cooking, or pick up some mending or sewing, or make entries in the household accounts. It may also be a convenient place for the children to study or play occasionally, and will be appreciated by the neighbor who runs in for a few minutes in the morning. A separate social corner often has the added advantage that to make room for it the other centers must be grouped closer together, thus making a more efficient arrangement for working. (Figs. 13, 14, and 16.)

UTENSILS AND SUPPLIES GROUPED AT CONVENIENT CENTERS

A plan for convenient grouping of utensils and supplies is suggested in the following brief lists. Every home maker has her own preferences about kitchen utensils, and few households require exactly the same things. These lists do not attempt to include all the articles that might go into a well-equipped kitchen, nor do

⁹ United States Department of Agriculture, Bureau of Home Economics. 1926. Methods and equipment for home laundering. U. S. Dept. Agr., Farmers' Bul. 1497, 37 p., illus.

they indicate number and size of utensils because size of family and other conditions determine these points for the individual kitchen. The number, however, should be limited to those actually needed. The tendency sometimes is to overstock the kitchen, with the result that too much time is taken up in handling and keeping the extra utensils in order. The lists given here suggest, rather, as do the many illustrations in this bulletin, how convenience can be brought about by thinking first of what is to be done in the kitchen and then assembling the needed tools and materials so that they can be reached without a waste step.

Near the sink:

- Dishpan.
- Dish cloths and towels.
- Dish drainer.
- Dish scraper.
- Soap and scouring materials.
- Garbage pail.
- Garbage drainer for sink.
- Waste basket.
- Brushes.
- Knives.
- Scissors.
- Colander.
- Strainers.
- Measuring cup.
- Saucepans.
- Double boiler.
- Coffee pot.
- Pitcher.

Near the worktable:

- Cookbooks.
- Measuring cups.
- Spoons.
- Beaters.
- Spatula.
- Bowls.
- Rolling pin.
- Molding board.
- Cutters.
- Choppers.
- Knives.
- Scissors.
- Scales.
- Baking pans (either here or in the cupboard).
- Flour and meal.
- Sugar and sirup.
- Flavorings, spices, and seasonings.
- Baking powder and soda.

Near the stove:

- Matches.
- Holders.
- Teakettle.
- Teapot.
- Frying pans.
- Griddles.
- Potato masher.
- Lids for kettles and pans.
- Ladle.
- Flour in a dredger.
- Thermometer.
- Spoons.
- Salt.
- Coffee.
- Tea.
- Sugar.
- Cereal breakfast foods.

In the kitchen cupboard:

- Roasting pans.
- Baking pans and dishes not in frequent use.
- Steamer.
- Molds.
- Ice-cream freezer.
- Canning equipment.

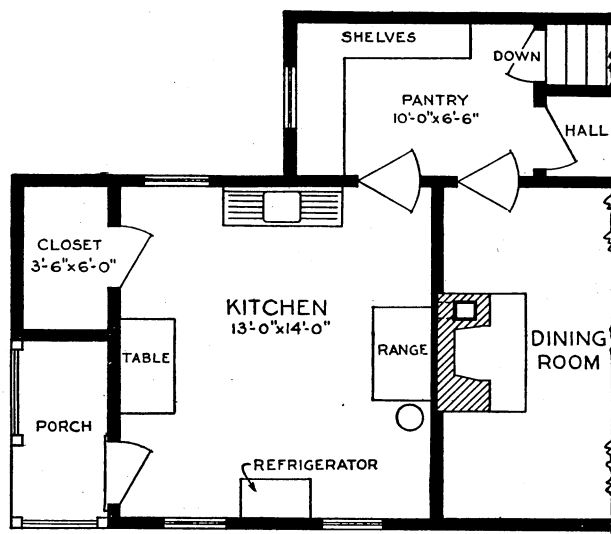
At serving cabinet:

- Table china, glassware, and silver.
- Linen.
- Trays.
- Mats for hot dishes.
- Table cooking appliances.
- Kitchen knives, forks, spoons, and ladles.
- Bread.
- Cake.
- Crackers.
- Small supply of jelly, preserves, pickles, and seasonings.

REMODELING THE KITCHEN

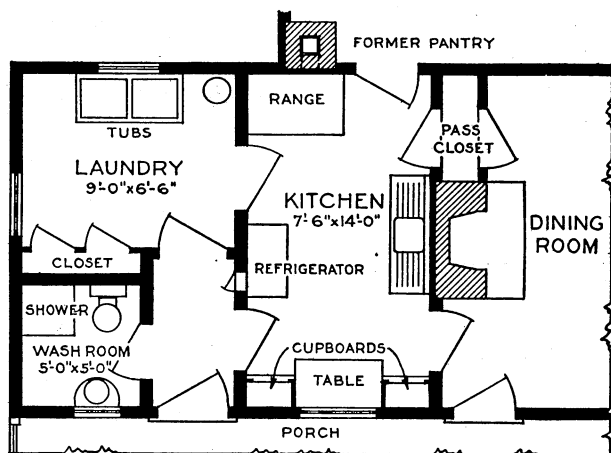
The first step toward remodeling an old kitchen is to think out a plan that considers the work to be done, how space and equipment can be efficiently arranged, and the relation of this room to the rest of the house. Too much time can hardly be spent in making and remaking the plan. Tearing out partitions, building new ones, adding doors and windows or closing up old ones, is expensive business. Careful planning will sometimes show that almost as good results can be accomplished by regrouping equipment, providing two sets of some of the smaller pieces, and refinishing the floor and painting the walls a light color.

Examples of some of the cases in which it would pay to remodel, with suggestions for changes, are given in Figures 27, 30, and 32. Many kitchens are larger than necessary, sometimes large enough to make two rooms; or a kitchen and pass pantry may be made into a small kitchen with direct connection with the dining room and an



No. 1

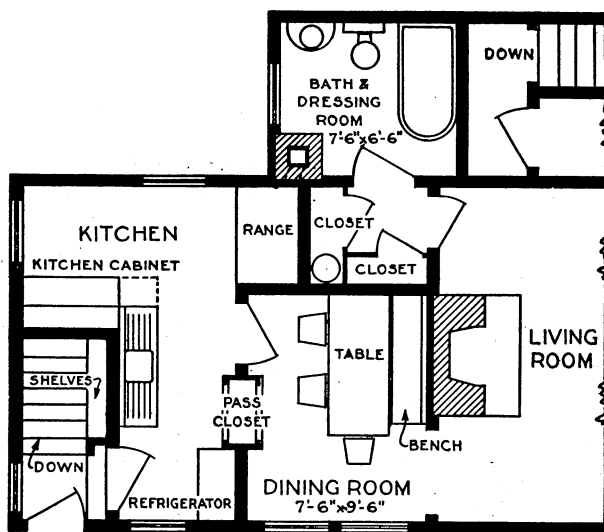
FIG. 30.—Scheme for remodeling farm kitchen, pantry, and porch. No. 1 shows the original plan. No. 2 shows a smaller kitchen with direct connection with dining room. A wash room, an entry, and a laundry room have been made from the porch, closet, and part of the original kitchen. The former pantry may be used as a sewing room, farm office, or storeroom.



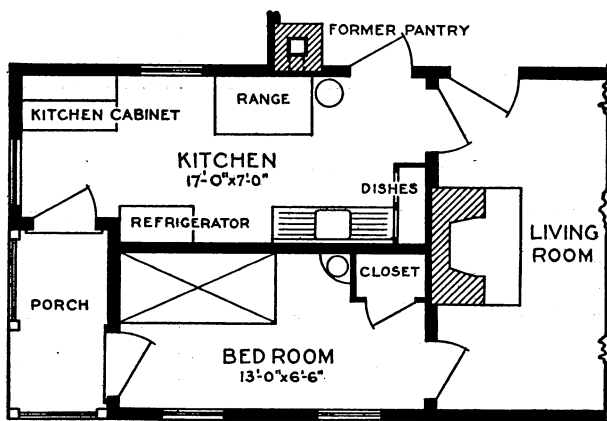
No. 2

extra room needed for a laundry, an office, or a wash room and coat room; or sometimes a pass pantry is large enough to be used as the kitchen, and the inconvenient old kitchen can be turned to another purpose. Many of the illustrations in this bulletin show ways in which the home maker herself can improve the kitchen at small expense.

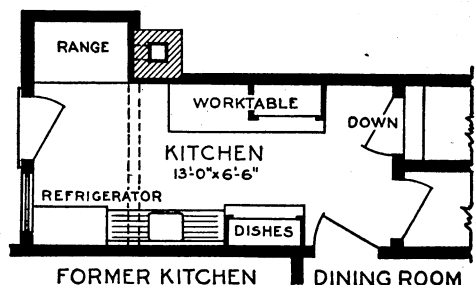
FIG. 31.—Three other possible schemes for remodeling the kitchen, pantry, and porch shown in Figure 30, No. 1. Arrangement No. 3 suggests a small dining room and a living room in place of the original dining room. A grade entrance and stairs to the basement replace the porch. The arrangement in No. 4 requires less tearing out of partitions than those in No. 2 and No. 3. The kitchen is too long for its width, but otherwise satisfactory. No. 5 shows how the former pantry might be extended a few feet and used for a kitchen, leaving the old kitchen for new uses. The walls of the recess in which the range is placed (Nos. 3 and 5) must be of fireproof construction



No. 3



No. 4



No. 5

ORGANIZATION OF THE UNITED STATES DEPARTMENT OF AGRICULTURE

October 27, 1926

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